

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to Moderate rainfall reported from most of the agricultural plains of Punjab, Khyber Pakhtunkhwa, G.B & Kashmir while Light from Balochistan during the last decade.
- ❖ Lowest minimum temperature recorded as -11.5°C at Kalam during the last decade.
- ❖ Light to moderate rainfall with snow over the mountains is expected in Punjab, Khyber Pakhtunkhwa, FATA, Baluchistan, Gilgit-Baltistan & Kashmir and Sindh during the first three days of the decade. However on 7th March rain/thunderstorm (with snowfall over hills) is expected at isolated places in north-east Balochistan, D.G khan, Bahawalpur, Malakand, Hazara, Rawalpindi divisions, Islamabad, Kashmir and Gilgit-Baltistan.
- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in the context of ongoing rains.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.

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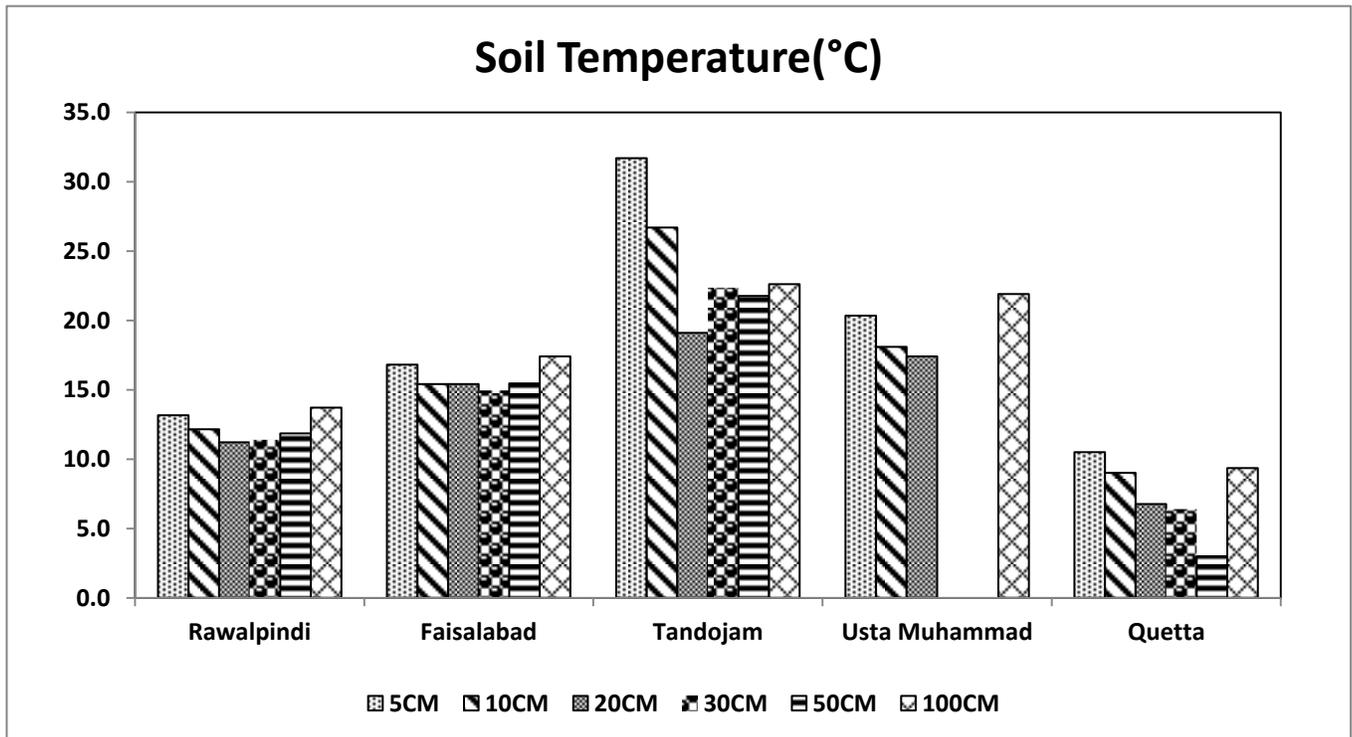
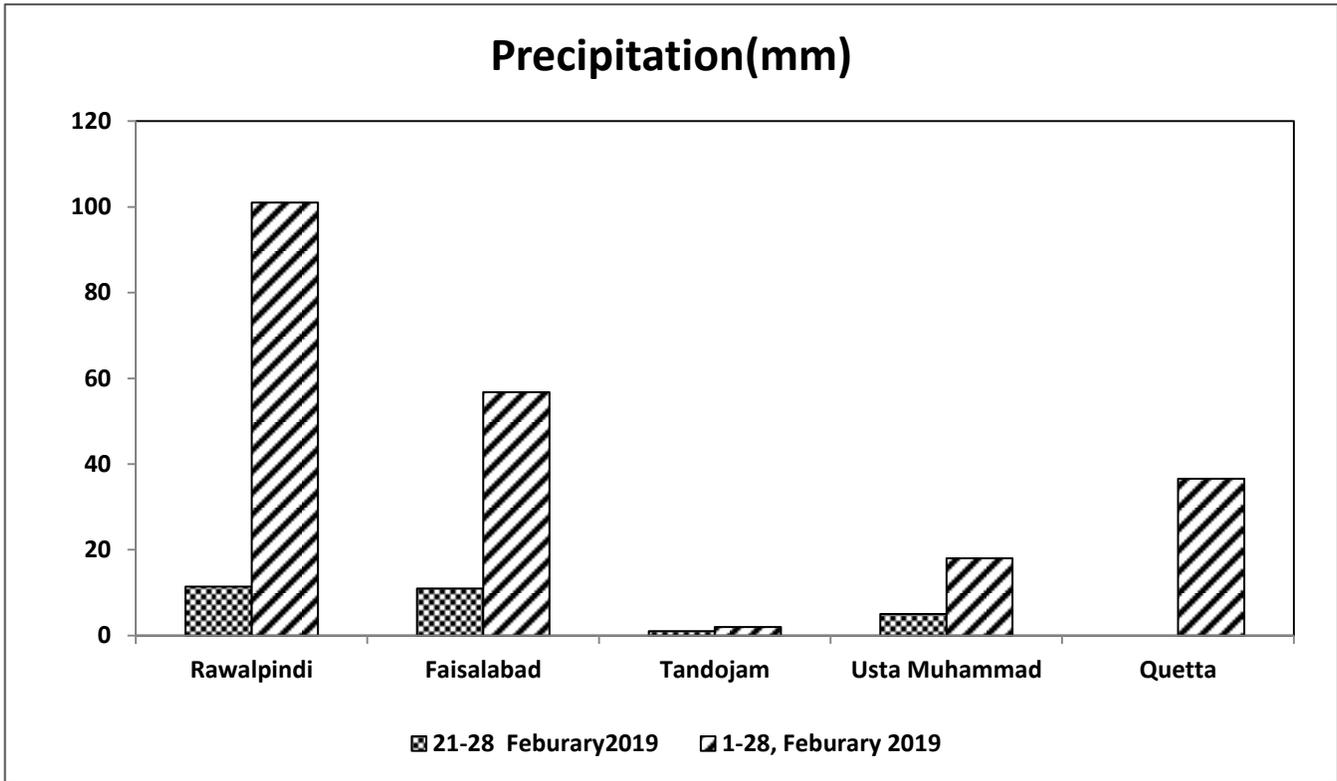
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Meteorological Conditions during 3rd Decade of February, 2019

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration(hours)	Wind Speed (km/hr)	ETo (mm/day)
		Normal	Actual	Dep	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	1.4	30.8	29.4	-3.7	-4.9	10.8	13.2	12.2	11.2	11.4	11.9	13.7	67	70.3	2.0	1.2
2	Faisalabad	0.3	11.0	10.7	-4.1	-1.9	14.7	16.8	15.4	15.4	15.0	15.5	17.4	61	65.8	2.2	1.5
3	Jhelum	1.0	18.8	17.8	-4.5	-3.0	13.7	16.9	15.7	14.9	14.8	15.7	***	65	60.0	2.9	1.4
4	Lahore	0.5	42.0	41.5	-3.5	-3.3	15.6	17.6	17.1	16.1	15.8	***	17.7	66	75.6	2.6	1.5
5	Sargodha	0.3	0.3	0.0	-2.8	-2.6	15.3	21.1	19.0	16.3	16.4	***	17.8	63	67.0	1.5	1.3
6	Multan	0.5	0.0	-0.5	-4.0	-2.3	15.6	***	***	***	***	***	***	59	64.9	3.4	1.8
7	Khanpur	0.1	0.0	-0.1	-4.6	-3.4	15.7	***	16.8	17.0	17.5	17.9	19.4	62	66.7	3.8	2.0
8	Tandojam	0.0	1.0	1.0	-3.8	-5.3	17.5	31.7	26.7	19.1	22.4	21.8	22.6	54	66.2	3.3	2.4
9	Sakrand ☆	0.1	0.0	-0.1	-4.0	-0.5	18.5	25.6	***	***	***	***	23.3	56	68.2	1.9	1.9
11	Rohri ☆	0.5	20.0	19.5	-4.7	-5.1	17.1	***	***	***	***	***	***	51	72.6	3.8	2.3
12	D.I Khan	1.9	11.0	9.1	-2.3	-5.3	17.5	31.7	26.7	19.1	22.4	21.8	22.6	54	66.2	3.3	2.4
13	Peshawar	0.4	29.1	28.7	-1.8	-3.2	14.6	14.0	15.9	15.4	15.3	0.4	***	60	66.9	7.5	1.3
14	Usta .M	0.4	5.0	4.6	-5.8	-3.0	16.7	20.4	18.1	17.4	***	***	21.9	55	***	2.4	1.8
15	Quetta	1.2	0.0	-1.2	-6.7	-2.4	5.8	10.5	9.0	6.8	6.4	3.0	9.4	45	74.5	5.5	1.7
16	Skardu	1.1	18.5	17.4	-3.6	1.0	2.6	***	***	***	***	***	***	74	31.9	0.5	0.7
17	Gilgit	0.3	9.0	8.7	-4.0	-0.3	7.1	***	***	***	***	***	***	51	29.5	2.3	1.0

Table-1: Meteorological parameters for selected station of Pakistan. “**Dep**” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “% **Dep**” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. **ETo** stands for reference crop evapotranspiration. *** stands for no data and (☆) indicates the station with five year’s climatic (normal) data for computing departures.

Graph at RAMCs during February, 2019



Past Weather (21st to 28th February, 2019)

Light to moderate rainfall reported from most of the agricultural plains of Punjab, Khyber Pakhtunkhwa, G.B & Kashmir while Light from Balochistan during the last decade.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from, Murree, Hafizabad & Mandibahuddin. Decadal maximum and minimum both dropped below normal by 3.9°C & 3.1°C respectively, in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 67.2hrs, 2.6km/hr and 1.5 mm/day respectively.

1.2 Sindh

Light to moderate rainfall reported from most of the agricultural plains of the Sindh. Highest rainfall reported from, Badin, Mithi & Tandojam. Decadal maximum and minimum both dropped below normal by 4.2°C & 3.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 69.0hrs, 3.0km/hr and 2.2 mm/day respectively.

1.3 Khyber Pakhtunkhwa

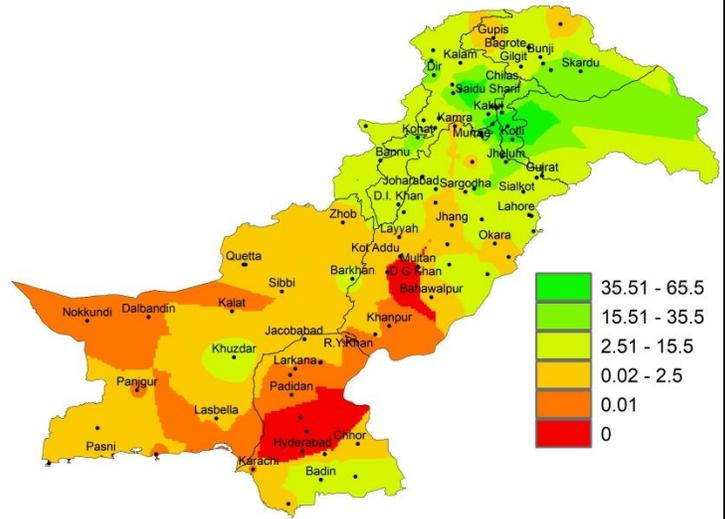
Light to moderate rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Malamjabba, Balakot & Kakul. Decadal maximum and minimum both dropped below normal by 2.1°C & 3.4°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 58.2hrs, 5.0km/hr and 1.9mm/day respectively.

1.4 Balochistan

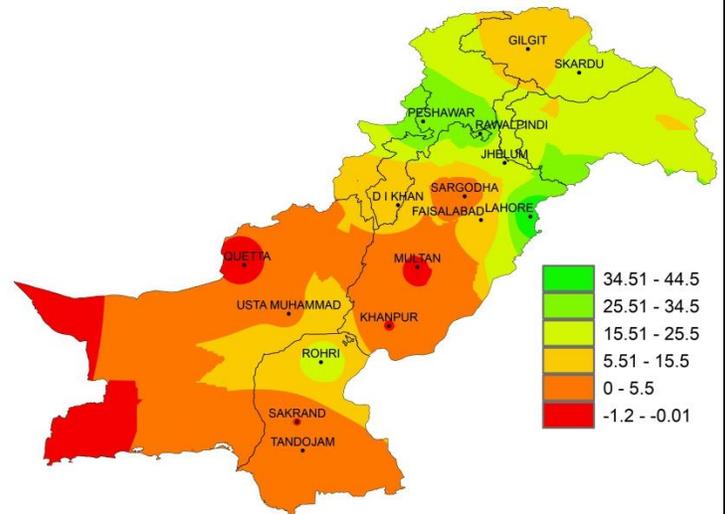
Light rainfall reported from most of the place from agricultural plains of the Balochistan. Highest rainfall reported from Jiwani, Barkhan & Quetta. Decadal maximum and minimum both dropped below normal by 6.3°C & 2.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 74.5hrs, 4.0km/hr and 1.8mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

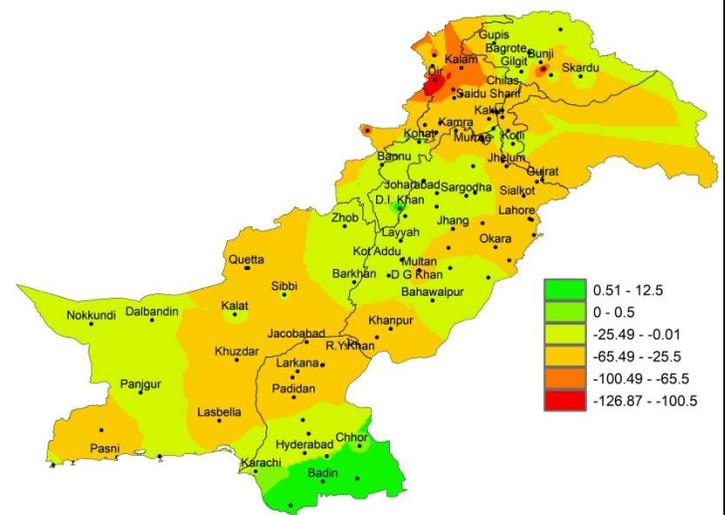
Light to moderate rainfall reported from most of the agricultural plains G.B & Kashmir. Highest rainfall reported from, Rawalakot, Garhi dopatta & Kotli. Decadal maximum dropped below normal by 3.8°C & minimum raised above normal by 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 30.7hrs, 1.4km/hr and 0.9 mm/day respectively.



I. Actual rainfall



II. Departure of rainfall from Normal



III. Departure of rainfall from Previous Decade

Figure.1: Rainfall distribution during previous decade (mm)

2(a) Past Weather for Major Agricultural Plains (21st to 28th February, 2019)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 11.4 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 18.5 °C while night temperature recorded as 4.7°C with 50.7 hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *Westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 11.0 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 20.9°C while night temperature recorded as 8.4°C with 65.8 hours bright sunshine duration. Wind speed recorded as 2.2 km/hr with mean wind direction *westerly*.

Wheat: Very good condition, Shooting completed.

2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 05 day during the decade. Average relative humidity recorded as 54%. Mean day temperature was 26.9 °C while night temperature recorded as 8.0°C with 33.9 hours bright sunshine duration. Wind speed recorded as 3.3km/h with mean wind direction *northerly*.

Wheat (TJ-83): Good condition, maturity.

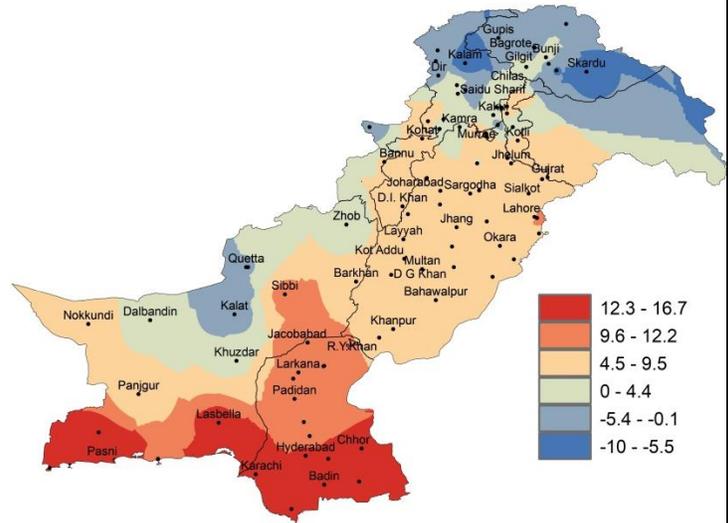
2.4 RAMC, Usta Muhammad (Eastern Baluchistan)

Rainfall reported as 5.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 23.4°C while night temperature recorded as 9.9°C. Wind speed recorded as 2.4 km/h with mean wind direction *South easterly*.

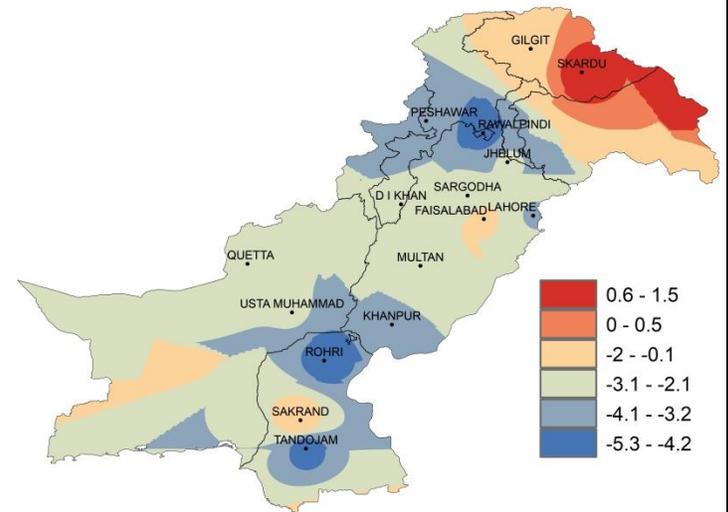
Wheat: Good condition, Tillering stage.

2.5 RAMC, Quetta (Northern Baluchistan)

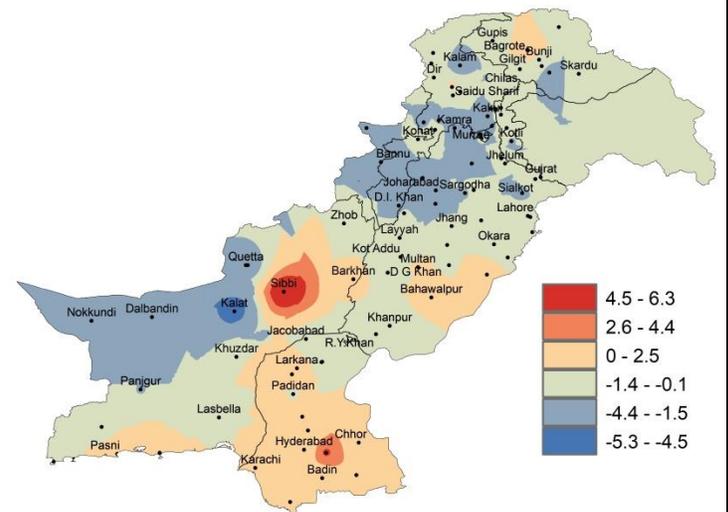
Dry weather reported during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 45%. Mean day temperature was 10.3°C while night temperature recorded as 1.2°C with 74.5 hours bright sunshine duration. Wind speed recorded as 5.5km/hr with mean wind direction *North westerly*.



I. Actual min-temp



II. Departure of min-temp from Normal



III. Departure of min-temp from Previous Decade

Figure.2: Minimum Temperature distribution during previous decade (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (21st to 28th February, 2019)

2.6 Jhelum

Rainfall reported as 18.8 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 19.7°C while night temperature recorded as 7.7°C with 60.0 hours bright sunshine duration. Wind speed recorded as 2.9 km/hr with mean wind direction *North westerly*.

2.7 Lahore

Rainfall reported as 42.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 20.9 °C while night temperature recorded as 10.3°C with 75.6 hours bright sunshine duration. Wind speed recorded as 2.6 km/hr with mean wind direction *Westerly*.

2.8 Sargodha

Rainfall reported as 3.0 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 20.6°C while night temperature recorded as 8.4°C with 57.3 hours bright sunshine duration. Wind speed recorded 1.2 km/hr with mean wind direction *easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 21.9°C while night temperature recorded as 9.2°C with 64.9 hours bright sunshine duration. Wind speed recorded 3.4 km/hr with mean wind direction *North easterly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 22.9 °C while night temperature recorded as 8.5°C with 66.7 hours bright sunshine duration. Wind speed recorded 3.8 km/hr with mean wind direction *North easterly*.

2.11 Sakrand

Dry weather reported during the decade; however sky remained clear throughout the decade. Average relative humidity recorded as 56%. Mean day temperature was 25.2°C while night temperature recorded as 11.7°C with 68.2 hours bright sunshine duration. Wind speed recorded 1.9km/hr with wind direction *North westerly*.

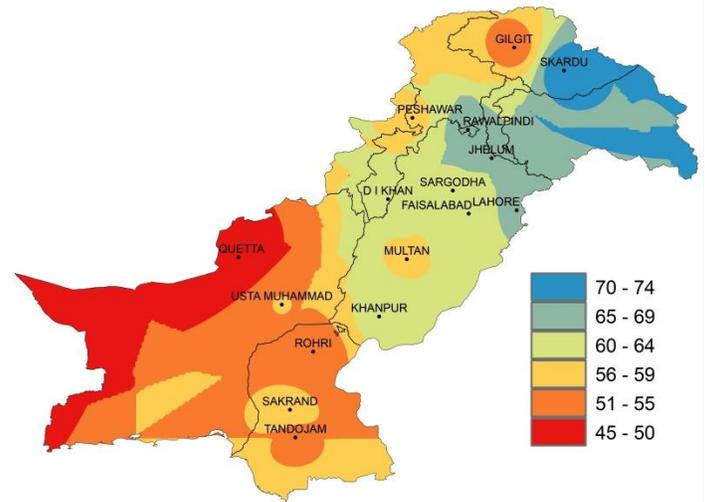


Figure.3: Relative Humidity in Percentage (%)

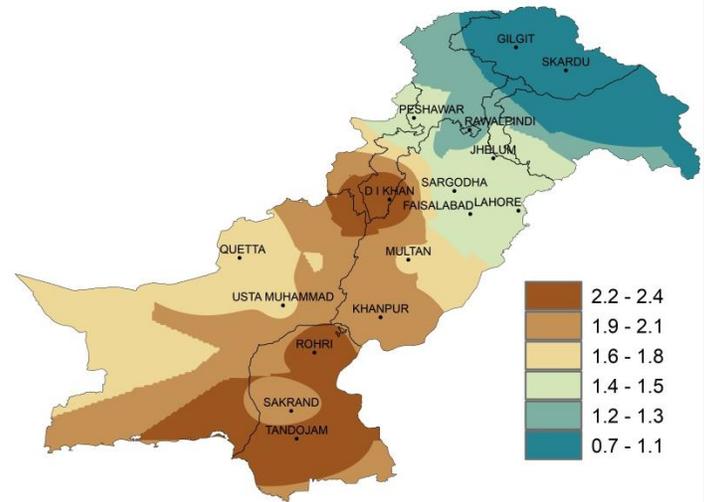


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

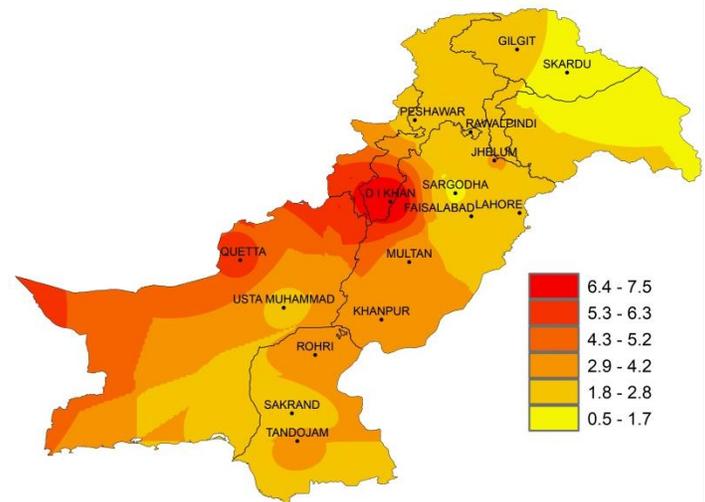


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 20.0 mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 24.1°C while night temperature recorded as 10.1°C with 72.6 hours bright sunshine duration. Wind speed recorded 3.8 km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as 11.0 mm during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 22.1°C while night temperature recorded as 7.1°C with 66.9 hours bright sunshine duration. Wind speed recorded as 7.5 km/hr with mean wind direction *North westerly*.

2.14 Peshawar

Rainfall reported as 8.8 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 19.2°C while night temperature recorded as 6.3°C with 50.7 hours bright sunshine duration. Wind speed recorded as 1.7 km/hr with mean wind direction *North westerly*.

2.15 Skardu

Precipitation reported as 18.5 cm (snowfall) during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 74%. Mean day temperature was 5.7°C while night temperature recorded as -0.6°C with 31.9 hours bright sunshine duration. Wind speed recorded as 0.5 km/hr with mean wind direction *Easterly*.

2.16 Gilgit

Rainfall reported as 9.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 29.5°C while night temperature recorded as 2.3 °C with 29.5 hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *Westerly*.

Ten Days Weather Advisory for Farmers (1st to 10th March, 2019)**3.1 Temperature Forecast**

Both day and night temperatures are likely to be below normal in most of the agricultural plains of the country during the decade.

3.2 Wind Forecast

Normal wind pattern may prevail in most of the agricultural plains of the country however strong winds is expected in Baluchistan, Sindh and southern Punjab during the start of the decade.

3.3 Rain Forecast

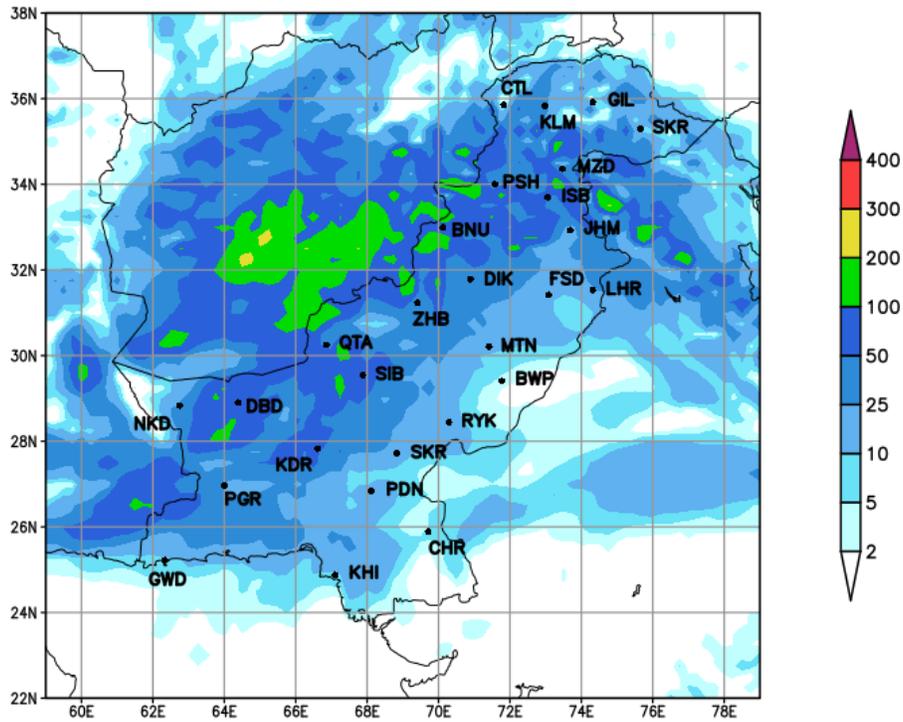
- ❖ **Punjab:** Rain thunderstorm with snowfall over the hills is expected at isolated places in Rawalpindi, Islamabad, Gujranwala, and Sargodha and Multan division during first three days of the decade and then on 7th March in Rawalpindi, Islamabad and Bahawalpur division.
- ❖ **Khyber Pakhtunkhwa:** Widespread Rain thunderstorm with snowfall over the hills is expected in Kohat, Bannu and D.I.Khan while at isolated places in Peshawar, Malakand, Mardan and Hazara divisions during the first three days of the current decade.
- ❖ **Sindh:** Rain thunderstorm is expected at isolated places in Sukkur, Larkana, Shaheed Benazirabad and Hyderabad divisions during the first two days of the decade.
- ❖ **Baluchistan:** Widespread rain / thunderstorm (with snowfall over hills) accompanied by windstorm is expected in Quetta, Zhob and Kalat during the first three days of the current decade. Heavy falls may cause flash flooding in local nullah/riverine of Baluchistan.
- ❖ **Gilgit-Baltistan:** Widespread rain / thunderstorm with snowfall over the hill is expected during the first three days of the current decade. After that on 7th March rain thunderstorm with snowfall over the hills is expected in the province.
- ❖ **Kashmir:** Widespread rain / thunderstorm is expected during first three days of the current decade and then on 7th March rain/thunderstorm with snowfall over the hills is expected.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.

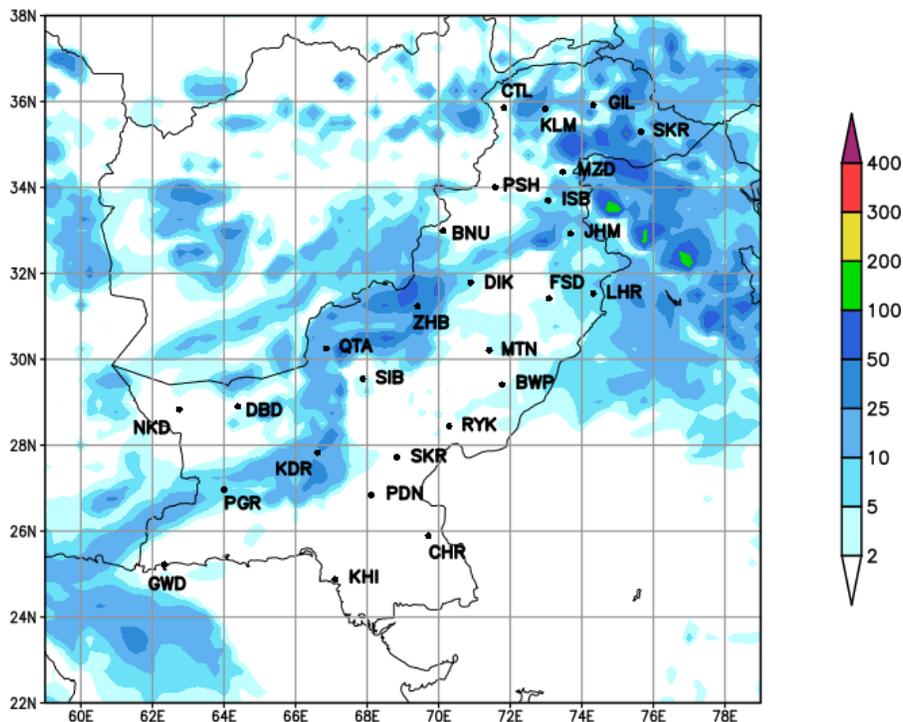
4.1 Precipitation Outlook (1st to 3rd March, 2019)

The forecast for the first three days (1st to 3rd) of the 1st decade of March, 2019 shows that moderate to heavy rainfall is expected in all over the country.



4.2 Precipitation Outlook (4th to 10th March, 2019)

The forecast for the last seven days (4th to 10th) of the 1st decade of March, 2019 shows that light to moderate rainfall is expected at scattered places of KP, G.B, upper & central Punjab, northern & central Baluchistan, Kashmir. However, cold and dry weather may prevail in rest of the country.



Findings of AgMIP Pakistan, University of Agriculture, Faisalabad

- ❖ There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in the night during mid-century (2040-2069).
- ❖ There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069).
- ❖ Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat).
- ❖ If there will be no adaptation to Climate Change, majority of farmers would be the economic losers.
- ❖ With Adaptation to Climate Change (through technology and management), there would be significant decrease in poverty and improvement in the livelihood of farming community.

(Agricultural Model Inter-comparison and Improvement Project (AgMIP) Pakistan 2012-2014)

- 1- سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہو سکتا ہے۔ جو کہ دن کے وقت 2.8°C اور رات کو 2.2°C تک ہوگا۔
- 2- گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔
- 3- مندرجہ بالا موسمی تغیرات کی وجہ سے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہو سکتی ہے۔
- 4- اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔
- 5- موسمی تغیرات کے سدباب (بذر یعنی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)